

Attorney's Docket No 2003P14713US

REMARKS

In reply to the Office Action of March 18, 2005, Applicants submit the following remarks. Claims 1, 4-6, 9 and 11 have been amended. Claims 14-26 are cancelled in view of a previous restriction requirement. Claims 28-33 are new. No new matter has been added. After entry of this amendment, claims 1-2 and 4-13 and 27-33 are pending. Claims 1 and 29 are independent claims.

Claim Rejections under 35 U.S.C. § 112

Prior to this response, claims 1-13 were rejected under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The office action objects to the term "much lower" in claim 1. Claim 1 has been amended to recite that the "surface energy of said deposition surface is lower than the surface energy of said photo-resist layer banks". Applicants submit that the amended claim is clear and that the objection is moot.

In addition, the office action indicates that the term "base organic solution", as recited in claim 1 and some of the dependent claims, is unclear because the term "base" is unclear as an adjective. Applicants submit that this term is clear to a person of ordinary skill in the art. As discussed in Applicants' specification, the base organic solution is a solution which includes material of the dried organic layer. As recited in claim 1, the base organic solution is formulated with water and humectant to form a reformulated organic solution which enhances dried layer uniformity. A suitable base organic solution for OLED use is a dispersion of PEDOT:PSS. The base organic solution is not necessarily the main component of the reformulated organic solution.

Finally, the office action objects to claim 1 for the use of the term "substantially" in reference to the "flat and uniform profile" of the dried film. "'Substantially' is a descriptive term commonly used in patent claims to 'avoid a strict numerical boundary to the specified parameter'." *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002) (quoting *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed Cir. 1995)). Terms such as substantially are to be interpreted as understood by persons experienced in the art. *Id.* at 1119-

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Claim Rejections under 35 U.S.C. § 102

Amended claim 1 is directed to an organic electronic device. The device has a deposition surface and a photo-resist layer. The photo-resist layer is fabricated upon the deposition surface. The photo-resist layer is patterned into a plurality of banks to define pockets upon said deposition surface. An organic layer is on the deposition surface and within said pockets. The organic layer is composed of a dried film resulting from drying a reformulated organic solution. The reformulated organic solution is comprised of a mixture of base organic solution, water and at least one humectant. The dried film has a substantially flat and uniform profile.

As discussed in Applicants' specification, forming dried organic layers for OLED's can involve depositing an organic solution onto a substrate. The organic solution is typically formed from a base solution that is a dispersion of conductive organic polymer. The organic solution can be reformulated by adding components to the base solution, for example, to enhance deposition efficiency. After deposition, this reformulated solution is dried to form the dried organic layer. In embodiments of Applicants' inventions, the organic solution is formed by reformulating the base solution with a combination of at least one humectant and water, which improves the dried layer uniformity by controlling the drying rate and adjusting the solid content. The humectant, an additive that typically enhances water retention, reduces the rate of solvent evaporation. The added water controls the solid content.

Prior to this amendment, claim 1 was rejected as being anticipated by U.S. Patent No. 6,787,063 ("Endo"), U.S. Application No. 2004/0214038 ("Kwong") and U.S. Application No. 2004/0021413 ("Ito"). Applicants respectfully disagree.

Endo fails to teach an organic layer formed by drying a reformulated organic solution including a mixture of base organic solution, water and at least one humectant. Rather, Endo describes a hole injection-transport composition having hole injection-transport material and certain solvents (col. 9, lines 55-67 and col. 10, lines 15-25). The hole injection-transport material includes Baytron P and Poly(styrene Sulfonate), and the solvents include isopropyl alcohol, N-Methylpyrrolidone and 1,3-Dimethyl-imidazolinone (*id.*). As a result, Applicants submit that the anticipation rejection in view of Endo should be withdrawn.

Similarly, Kwong fails to teach an organic layer formed by drying a reformulated organic solution including a mixture of base organic solution, water and at least one humectant. Rather,

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Kwong describes a hole injection layer that is formed using a PEDOT:PSS solution (paragraph 0052). Kwong does not teach or suggest reformulating the solution with a humectant and water. As a result, Applicants submit that the anticipation rejection in view of Kwong should be withdrawn.

Finally, Ito describes a hole injection layer formed from an aqueous solution of PEDOT:PSS (paragraph 0169). Ito does not teach or suggest a device that is formed by drying a reformulated organic solution, where the solution includes a mixture of base organic solution, water and at least one humectant, as claimed. As a result, Applicants submit that the anticipation rejection in view of Ito should be withdrawn.

Claims 2 and 4-13 depend from claim 1, which Applicants have demonstrated to be allowable over Endo, Kwong and Ito. These dependent claims are allowable at least for the reasons discussed above.

Nor could the references suggest the inventions. None of the references suggests a reformulated organic solution including a base organic solution, a humectant and water, let alone that such a solution could improve dried layer uniformity.

New independent claim 29 recites a reformulated organic solution including a polyol humectant (see specification page 18, line 24 and page 19, line 1). Applicants submit that this claim is as well allowable over Endo, Kwong and Ito, none of which teach or suggest a reformulated organic solution including a polyol humectant, let alone the effect of improved dried layer flatness when a polyol humectant is added to a base organic solution.

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